

**DATE:** June 3, 2002

**TO:** Region Engineers  
Region Delivery Engineers  
TSC Managers  
Resident/Project Engineers  
Region Construction Engineers

**FROM:** Larry E. Tibbits  
Chief Operations Officer

John Friend  
Engineer of Delivery

**SUBJECT:** Bureau of Highway Instructional Memorandum 2002-09  
Qualifications for Sampling HMA Behind the Paver

The qualification procedure has been updated for sampling hot mix asphalt (HMA) from behind the paver. All future Michigan Department of Transportation (MDOT) projects will use this sampling method with Superpave and marshall mixtures for quality assurance testing. The procedure outlined in the attached checklist is to be used to qualify MDOT and consultant technicians in the method for a period of one year.

Michigan Test Method (MTM) 324-02 (attached), which is referenced in the checklist, includes two options. The option to be used should be agreed upon by the MDOT delivery engineer and contractor at the pre-production meeting.

- Option 1. Sampling with metal plates and shovel.
- Option 2. Sampling with shovel alone.

Metal plates must always be used when sampling HMA over an aggregate, rubblized, or crush and shape base, or a milled surface. A contract modification will be required for projects previously under contract to supercede MTM 324-99, which is part of the Special Provision for Sampling Behind the Paver in the project proposal.

Each region's traveling mix inspector will coordinate the qualification testing, provide training videos and written procedures, and issue the completed qualification documentation.

Please contact Mike Frankhouse (517-322-5672) or Gary Mayes (517-322-5668) if you have any questions.

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Chief Operations Officer

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Engineer of Delivery

BOHTS:C/T:MF:kab

Subject Index: Hot Mix Asphalt

Attachments

cc: C & T Division Staff  
Real Estate, M. Frierson  
Design Division, P. Miller  
Maintenance Division, C. Roberts  
Traffic & Safety Division, J. O'Doherty  
C & T Division, J. Culp  
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MAPA  
MCPA  
MCA  
MAA  
AUC  
CRAM  
MRPA  
ACEC  
MPA

## Sampling HMA Behind the Paver Method - Qualification

	Yes	No
1. View MDOT video on sampling from behind the paver.		
2. Review MTM-324.		
3. Observe sampling candidate acquiring HMA sample. Be sure candidate follows sampling procedure MTM-324 to ensure each step is performed correctly.		
4. Samples properly identified and distribution of samples to receiving parties.		
5. Sampling equipment cleaned and maintained after sampling is complete.		

Candidate Technician \_\_\_\_\_

MDOT Qualified Technician \_\_\_\_\_

Date \_\_\_\_\_

**MICHIGAN TEST METHOD  
FOR  
SAMPLING HMA PAVING MIXTURES  
BEHIND THE PAVER**

**1. Scope**

- 1.1 This method covers the procedures for sampling HMA paving mixtures at the point of delivery immediately behind the paver and before initial compaction.
- 1.2 The values stated are to be regarded as the standard.
- 1.3 These procedures may involve hazardous materials, operations and equipment. They do not claim to address all of the safety and health issues associated with their use. It is the responsibility of each user to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

**2. Significance and Use**

- 2.1 Sampling is equally as important as testing, and the sampler will use every precaution to obtain samples that will show the nature and condition of the materials which they represent.
- 2.2 This sampling method may be used for:
  - 2.2.1 Contractor Quality Control
  - 2.2.2 Agency Quality Assurance
  - 2.2.3 Investigations

**3. Equipment**

- 3.1 Sampling Plates - (3 each) The sampling plates used for Superpave mixtures shall be rectangular and have a minimum size of 14 x 28 inches (360 x 720 mm). For Marshall mixtures optional plates can be used that are square at a minimum size of 14 x 14 inches (360 x 360 mm) (Fig. 2). All plates will have a hole approximately 0.25 inches (6 mm) in diameter drilled through each of the four corners.
- 3.2 Lifting Handles and Wire Lead - Attach a 24 inch (600 mm) length of wire to the two holes on each side of the plate to serve as lifting handles. An additional wire lead is attached to one of the lifting handles for locating the buried plate in the pavement. This wire will extend to the edge of the pavement.
- 3.3 3.5 or 5 gallons (13 or 19 liters) or suitable non-absorbent containers.
- 3.4 Trowel or scoop for collecting sample from templates.

3.5 Hammer and nails for securing plates and wire lead.

3.6 MDOT Approved Sampling Shovel (Fig. 3)

3.7 MDOT Approved Splitter

#### 4. Composite Sample

4.1 Sample the HMA paving mixtures at the point of delivery immediately behind the paver and before initial roller compaction. One composite sample consists of a minimum of three increments collected within 50 feet (15 meters) longitudinally and across the width of the paving operation (Fig .1).

4.2 Sample Size - The composite sample shall be governed by the special provision in the contract.

#### 5. Sampling With Plates and Shovel

5.1 Determine the sample locations per section 4.1 using a random number generating calculator according to the special provision for QC/QA.

5.2 Place the plate with the wire lead attached to one of the handles at the designated location ahead of the paver (Fig. 2). If conditions on the project require restricting movement of the plate, drive a nail through one of the holes in the plate and into the pavement.

5.3 Extend the wire lead beyond the edge of the pavement. Trucks, pavers, and/or materials transfer devices will be allowed to cross over the plate and/or wire lead.

5.4 After the mixture is placed, use the wire lead to locate the plate. Find and lift the wire handles out of the pavement. This will locate the four corners of the plate.

5.5 Once the plate edges are defined, use the shovel and dig downward through the thickness of the pavement until it is in contact with the plate. Push the shovel forward until the sample is full. Lift the shovel up slowly, being careful not to lose any HMA. Place material from shovel directly into sample container.

5.6 Deposit material from sample container into splitter, split samples and distribute.

5.7 Remove sampling plates from pavement.

5.8 The Contractor will fill and level the void left in the pavement with HMA obtained from the paver.

#### 6. Sampling With Shovel

6.1 Determine the sample locations per section 4.1 using a random number generating calculator according to the special provision for QC/QA.

- 6.2 Using a sampling shovel at the random location, dig directly downward into pavement until it comes into contact with existing surface. When in contact, push shovel forward until sampling shovel is full of HMA and lift the shovel up slowly, being careful not to lose any HMA. Place material from shovel directly into sample container.
- 6.3 Deposit material from sample container into splitter, split samples and distribute.
- 6.4 The Contractor will fill and level the void left in the pavement with HMA obtained from the paver.

## 7. Sample Reduction

- 7.1 Reduction of the composite sample shall be done with an MDOT approved splitter.

## 8. Documentation

- 8.1 After the sample has been obtained, the attached form titled **Sample Identification for HMA Mixture Street Samples** will be filled out completely and included with the sample.

### SAMPLE IDENTIFICATION FOR HMA MIXTURE STREET SAMPLES

CONTROL SECTION:	JOB NUMBER:	PROJECT ENGINEER:
DATE SAMPLED:	TIME SAMPLE TAKEN:	CONTRACTOR:
LOT, SUBLOT NUMBER AND LOCATION:	HMA MIX TYPE:	TONNAGE REPRESENTED:
REMARKS:		
SAMPLED BY:		

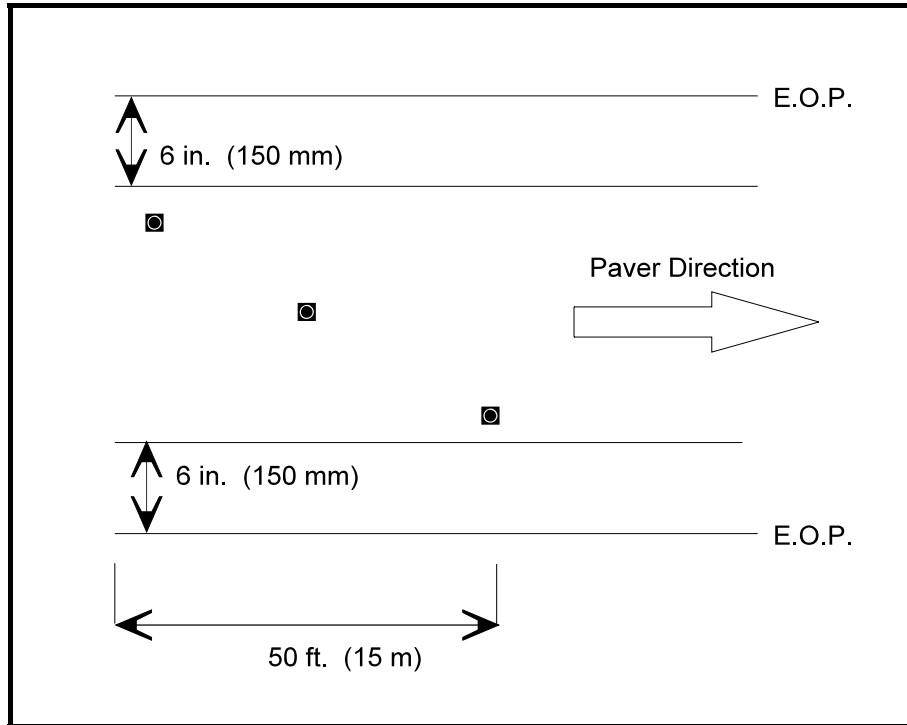


Figure 1: Incremental Sampling Pattern Behind the Paver

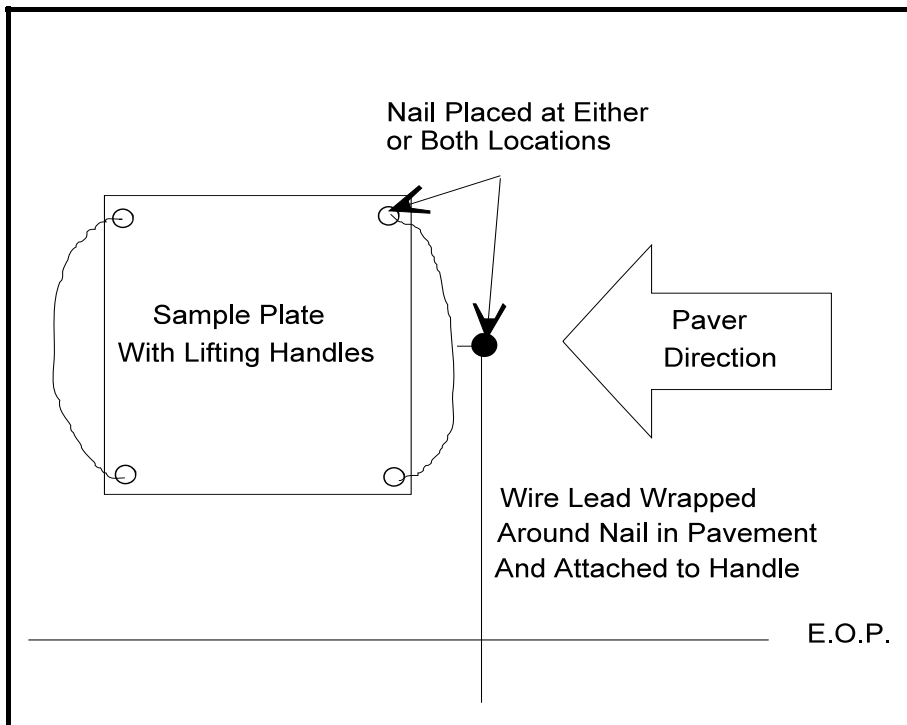


Figure 2 : Placing Sample Plate Ahead of Paver



Dimensions: Overall Length = 5 Feet  
Shovel Width = 10 Inches  
Shovel Length = 12 Inches  
Shovel Sides = 3 Inches (Minimum)

Figure 3